



Response to Poot *et al.* 2008. “Green Light for Nocturnally Migrating Birds”

Response to: Green Light for Nocturnally Migrating Birds

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I applaud the direction of this study. Efforts such as this toward reducing the effects of artificial light on night migrating birds could play an important role in long term conservation for hundreds of species of migratory birds around the globe. Toward that end I offer some constructive criticism and hope the authors continue and augment their research.

Ideally, field studies comparing the effects of different light characteristics would be carried out under uniform natural light and cloud conditions, i. e., cloud ceiling height above ground and percent of sky covered. In this study, designated “overcast” study periods apparently might have had anywhere from a high cloud ceiling, e.g., 2000 m, to one at ground level, e.g., fog. Cloud ceiling information is critical to consider as a variable in these experiments because in conditions of high ceiling, migrating birds can see distant light sources and the horizon quite well. In such cases they may not be as susceptible to effects from any particular light source on the ground compared with when they are migrating in the limited visibility under or within a very low cloud layer, e.g., <50 m. The authors indicate that the nearest village with artificial lighting was about 10 km away. In conditions of moderately high cloud ceilings, e.g., >300 m, such lights could very likely be visible to night migrating birds, if not directly, then indirectly via reflection off the cloud ceiling. The authors’ conclusion that red light causes more disorientation for night migrating birds than green light appears to be based on the small sample that 13 of 24 groups or individual birds were noted to “react” in red light. Such a small sample, without involving the variable of cloud ceiling height during the different light study periods, does not support confidence in the authors’ conclusions.

Furthermore, if red light is more disruptive to night migrating birds than green, as the authors conclude, then why were there only 24 incidents of individuals

or groups of birds documented during the red light overcast periods, while there were 77 in the green and 38 in the blue (see Table 3, column 2 in the paper)? Perhaps there were more green and blue overcast study periods, but I find no indication of the number of each 45-minute color period in the study. Perhaps there was more migration volume during the green and blue overcast periods, but I find no indication of that in the study. Other than what is seen passing through the lighted area, there is no assessment of actual migration density during the various light study periods. Presuming there were about the same number of periods of each colored light, what is to stop me from speculating that there were three times more bird encounters in the overcast green light periods than the overcast red light periods because birds, using rhodopsin photopigment like we do, are much more sensitive to green light than red at night. They might therefore have been more likely to be attracted from afar to the green light, a potential effect before the human observer at the light source could register them. Although the authors acknowledge their lack of information about such possible distant light effects, they don’t factor the possibility of such influences into their central conclusion about spectral characteristics that may reduce avian impacts. In other words, even though encountering red light may lead to disablement of a birds’ geomagnetic navigation system, perhaps red light would ultimately be safer because birds are theoretically much less sensitive to it visually at night and fewer birds might therefore be influenced by it. More research is apparently needed to tease this apart.

Responses to this article can be read online at:
<http://www.ecologyandsociety.org/vol15/iss3/resp1/responses/>

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LITERATURE CITED

Poot, H., B. J. Ens, H. de Vries, M. A. H. Donners, M. R. Wernand, and J. M. Marquenie. 2008. Green light for nocturnally migrating birds. *Ecology and Society* **13**(2): 47. [online] URL: <http://www.ecologyandsociety.org/vol13/iss2/art47/>.